AMENDMENTS TO THE CLAIMS

1. (Currently amended) A method for treating tungsten carbide particles, comprising the steps of:

a) providing a starting material containing cast eutectic tungsten carbide particles of a given hardness having a particle size ranging from 1 μm and 5 mm and ~~having an eutectoid composition~~ comprising ~~of~~ WC and W2C, said tungsten carbide particles being of a W-C system whose compositions, microstructures and phase distribution are represented on an equilibrium temperature-composition binary phase diagram plotting temperature against relative concentrations of W and C, said binary phase diagram of the W-C system showing a monophasic domain of a γ solid phase corresponding to WC1-x having a face-centered cubic structure~~, said monophasic domain being upwardly delimited by a liquidus line and said particles having a content in carbon chosen so that the particles have a thermal path at equilibrium that crosses the monophasic domain~~;

b) subjecting said starting material to a homogenization heat treatment in said monophasic domain, thereby obtaining WC_{1-x} monophased particles having a face-centered cubic structure;

and

c) subsequently to the homogenization treatment of step b), subjecting the tungsten carbide particles to a quenching step ~~the tungsten carbide particles~~ to freeze at ambient temperature at least a portion of the face-centered cubic structure ~~monophased particles~~and refine grain size of the microstructure, thereby ~~so as to~~ obtaining a final product at ambient temperature containing particles with a finer miscrostructure than the starting material, a particle size similar to the particle size of the starting material, a composition comprising at least a portion of ~~with a~~ ~~cubic~~ face-centered cubic WC_{1-x} structure ~~microstructure~~ and a hardness greater than said hardness of the starting material~~.~~.

2. (Currently amended) A method according to claim 1, comprising between the homogenization heat treatment and the quenching, the step of:

-heating the WC_{1-x} monophased particles above ~~the~~a liquidus line of the monophasic domain to spheroidize the particles.

3. (Previously presented) A method according to claim 1 or 2, wherein said tungsten carbide particles of the starting material have an angular shape.

4. (Previously presented) A method according to claim 3, wherein said tungsten carbide particles of the starting material have an average diameter of less than 200 μm.

5.(Previously amended) A method according to claim 1, wherein said tungsten carbide particles of the starting material contains between 37% and 39% of atomic C.

6 (Canceled)

7 (Previously amended). The method according to claim 1, wherein said starting material contains at least one alloying element for enlarging said monophasic domain, thereby increasing the hardenability of the monophased particles.

8. (Previously presented) The method according to claim 7, wherein said alloying element is selected from the group consisting of Ti, V, Nb and Ta.

9. (Currently amended) The method according to claim 7, wherein said starting material <u>further</u> contains at least 0.1 % by weight of Nb.

10. (Currently amended) currently amended) The method according to claim 9, wherein said starting material <u>further</u> contains 8% by weight of Nb.

11. (Previously amended) The method according to claim 7,~~,~~ wherein said alloying element is cast with the tungsten carbide in said starting material.

12. (Canceled)

13. (Currently amended) The method according to claim 8, wherein said final product further contains ~~a first portion of said monophased particles comprise particles of a WC_{1-x} composition, and a second portion of said monophased~~ particles ~~comprises particles~~ of a XC_{1-x} composition, wherein X is selected from the group consisting of Ti, V, Nb and Ta.

14. (Previously presented) The method according to claim 1 , wherein the homogenization treatment of step b) comprises heating the starting material in a graphite furnace.

15. (Currently amended) The method according to claim 2, comprising the use of a graphite furnace having top and bottom chambers connected so as to allow particle circulation from the top to the bottom chamber, said homogenization treatment taking place in the top chamber, and said heating above the liquidus line taking place in the bottom chamber.

16. (Previously presented) The method according to claim 15, wherein said bottom chamber is heated by induced plasma.

17. (Currently amended) ~~Monophased t~~Tungsten carbide particles ~~treated~~ obtained according to the method of claim 1, said particles comprising ~~having~~ at least a portion of -face-centered cubic WC_{1-x} ~~microstructure~~, a particle size ranging from 1 μm and 5 mm.~~,~~

18. (Canceled)

19. (Currently amended) ~~Monophased t~~Tungsten carbide particles ~~treated~~obtained according to the method of claim 8, said particles having a face-centered cubic microstructure, a first portion of said particles having a WC_{1-x} composition, and a second portion of said particles having a XC_{1-x} composition, wherein X is selected from the group consisting of Ti, V, Nb and Ta, said particles having a particle size ranging from 1 μm and 5 mm. ~~,~~

20. (Previously presented) Monophased tungsten carbide particles according to claim 19, wherein X consist of Nb and the second portion of the particles constitute more than 0.1% of said monophased tungsten carbide particles, thereby reducing the miscibility thereof at high temperature.

21. (Canceled)

22 (new) A method for treating tungsten carbide particles, comprising the steps of:

a) providing a starting material containing cast eutectic tungsten carbide particles having a particle size ranging from 1 μm and 5 mm and comprising WC and W_2C;

b) subjecting said starting material to a homogenization heat treatment at a temperature between 2535°C and 2720°C and obtaining WC1-x monophased solid particles having a face-centered cubic structure;

and

c) subsequently to the homogenization of step b), subjecting the tungsten carbide particles to a quenching treatment to freeze at ambient temperature at least a portion of the of the face-centered cubic structure and to refine the microstructure, thereby obtaining a final product at ambient temperature containing particles having a finer microstructure than the starting material, a particle size similar to the particle size of the starting material, a composition comprising at least a portion of cubic face-centered WC_{1-x}.

23. (New) A method according to claim 22, comprising between the homogenization heat treatment of step b) and the quenching treatment of step c), the step of:

-heating the particles obtained in step c) at a temperature above 2720°C to spheroidize the particles.

24. (New) Tungsten carbide particles obtained according to the method of claim 22, said particles comprising at least a portion of face-centered cubic WC_{1-x} and a particle size ranging from 1 μm and 5 mm.

25. (New) A method according to claim 22 or 23, wherein said tungsten carbide particles of the starting material have an angular shape.

26. (New) Tungsten carbide particles obtained according to the method of claim 23, said particles comprising at least a portion of face-centered cubic WC_{1-x} and a particle size ranging from 1 μm and 5 mm.

27. (New) A method according to claim 24, wherein said tungsten carbide particles of the starting material have an average diameter of less than 200 μm.

28. (New) A method according to claim 1, wherein said tungsten carbide particles of the starting material contains between 37% and 39% of atomic C.

29. (New) A method according to claim 1, wherein the hardness of the final product is at least 2900HV.